14/6
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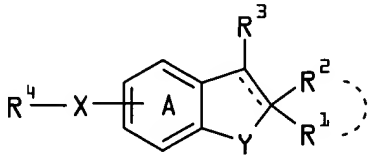
Version with Markings to Show Changes Made

In the Claims

1. (THRICE AMENDED) A compound of the formula:



wherein R^1 and R^2 each represent an acyclic hydrocarbon group, a cycloalkyl group, or R^1 and R^2 form, taken together with the adjacent carbon atom, a 3- to 8-membered **substituted or unsubstituted** carbo or heterocyclic ring **[which may be substituted]**;

R^3 represents an **unsubstituted or substituted** aromatic group **[which may be substituted]**;

R^4 represents (1) an **unsubstituted or substituted** aromatic group **[which may be substituted]**, (2) an aliphatic hydrocarbon group substituted by an **unsubstituted or substituted** aromatic group **[which may be substituted]**, which hydrocarbon group **[may be] is optionally** further substituted or (3) an acyl;

X and Y each **[represents] represent** an oxygen atom **[or a sulfur atom which may be oxidized]**;

---- represents a single bond or a double bond; and

ring A represents a benzene ring **[which may be] optionally** further substituted apart from the group of the formula: $-X-R^4$ wherein each symbol is as defined above,

provided that when **[X and Y are oxygen atoms and]** ---- is a single bond, R^4 is not an acyl,

or a salt thereof.

2. (TWICE AMENDED) A compound of Claim 1,

wherein R^1 and R^2 each is a C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-6} cycloalkyl or R^1 and R^2 form, taken together with the adjacent carbon atom, a C_{3-8} cycloalkane or a 3- to 8-membered heterocyclic ring, each of which **[may be]** **is optionally** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl, C_{7-16} aralkyl, amino, mono-C_{1-6} alkylamino, mono-C_{6-14} arylamino, di-C_{1-6} alkylamino, di-C_{6-14} arylamino and 5- to 10-membered aromatic heterocyclic group;

R^3 is a C_{6-14} aryl or a 5- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms,

each of which **[may be]** **is optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-3} alkylenedioxy,

(3) nitro,

(4) cyano,

(5) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(6) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(7) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(8) **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(9) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(10) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(11) hydroxy,

(12) amino,

(13) mono-C_{1-6} alkylamino,

(14) di-C_{1-6} alkylamino,

(15) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(16) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(17) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(18) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(19) sulfo,

(20) C_{6-14} aryl and

(21) C_{6-14} aryloxy;

R^4 is (i) a C_{6-14} aryl or a 5- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms,

each of which **[may be]** **is optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-3} alkylenedioxy,

(3) nitro,

(4) cyano,

(5) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(6) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(7) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(8) **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(9) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(10) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(11) hydroxy,

(12) amino,

(13) mono-C_{1-6} alkylamino,

(14) di-C_{1-6} alkylamino,

(15) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino** **[which may be]** substituted by 1 to 3 substituents selected from the

group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(16) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(17) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(18) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(19) sulfo,

(20) C_{6-14} aryl and

(21) C_{6-14} aryloxy,

(ii) an aliphatic hydrocarbon group selected form the group consisting of C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl and C_{3-6} cycloalkyl,

which hydrocarbon group substituted by 1 to 3 C_{6-14} aryl or 5- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms,

each of which **[may be]** **is optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-3} alkylenedioxy,

(3) nitro,

(4) cyano,

(5) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(6) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(7) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(8) **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(9) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(10) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(11) hydroxy,

(12) amino,

(13) mono-C_{1-6} alkylamino,

(14) di-C_{1-6} alkylamino,

(15) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(16) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(17) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(18) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(19) sulfo,

(20) C_{6-14} aryl and

(21) C_{6-14} aryloxy,

which hydrocarbon group **[may be]** **<u>are optionally</u>** further substituted by 1 to 5 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-3} alkylenedioxy,

(3) nitro,

(4) cyano,

(5) **[optionally]** halogenated **<u>or unhalogenated</u>** C_{1-6} alkyl,

(6) **[optionally]** halogenated **<u>or unhalogenated</u>** C_{2-6} alkenyl,

(7) **[optionally]** halogenated **<u>or unhalogenated</u>** C_{2-6} alkynyl,

(8) **[optionally]** halogenated **<u>or unhalogenated</u>** C_{3-6} cycloalkyl,

(9) C_{6-14} aryl,

(10) **[optionally]** halogenated **<u>or unhalogenated</u>** C_{1-6} alkoxy,

(11) **[optionally]** halogenated **<u>or unhalogenated</u>** C_{1-6} alkylthio,

(12) hydroxy,

(13) amino,

(14) mono-C_{1-6} alkylamino,

(15) mono-C_{6-14} arylamino,

(16) di-C_{1-6} alkylamino,

(17) di-C_{6-14} arylamino,

(18) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-

carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(19) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(20) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(21) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(22) 5- to 10-membered aromatic heterocyclic group and

(23) sulfo, or

(iii) an acyl of the formula: $-(C=O)-R^5$, $-(C=O)-OR^5$, $-(C=O)-NR^5R^6$, $-(C=S)-NHR^5$, $-SO_2-R^{5a}$ or $-SO-R^{5a}$

wherein R^5 is

(a) a hydrogen atom,

(b) a C_{6-14} aryl or a 5- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms, each of which **[may be]** **is optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-3} alkylenedioxy,

(3) nitro,

(4) cyano,

(5) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(6) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(7) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(8) **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(9) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(10) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(11) hydroxy,

(12) amino,

(13) mono-C_{1-6} alkylamino,

(14) di-C_{1-6} alkylamino,

(15) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(16) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(17) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(18) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(19) sulfo,

(20) C_{6-14} aryl and

(21) C_{6-14} aryloxy, or

(c) a C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl or C_{3-6} cycloalkyl **unsubstituted or substituted** group**; said substituted group [which may be]** substituted by 1 to 5 substituents selected from the group consisting of

(1) C_{6-14} aryl or 5- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms,
each of which **[may be] is optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1') halogen atoms,

(2') C_{1-3} alkylenedioxy,

(3') nitro,

(4') cyano,

(5') **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(6') **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(7') **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(8') **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(9') **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(10') **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(11') hydroxy,

(12') amino,

(13') mono-C_{1-6} alkylamino,

(14') di-C_{1-6} alkylamino,

(15') 5- to 7-membered saturated **substituted or unsubstituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(16') acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(17') acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(18') acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-

carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(19') sulfo,

(20') C_{6-14} aryl and

(21') C_{6-14} aryloxy,

(2) halogen atoms,

(3) C_{1-3} alkylenedioxy,

(4) nitro,

(5) cyano,

(6) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(7) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(8) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(9) **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(10) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(11) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(12) hydroxy,

(13) amino,

(14) mono-C_{1-6} alkylamino,

(15) di-C_{1-6} alkylamino,

(16) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(17) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(18) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(19) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy and

(20) sulfo;

R^{5a} is

(a) a C_{6-14} aryl or a 5- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms, each of which **[may be]** **is optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-3} alkylenedioxy,

(3) nitro,

(4) cyano,

(5) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(6) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(7) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(8) **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(9) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(10) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(11) hydroxy,

(12) amino,

(13) mono-C_{1-6} alkylamino,

(14) di-C_{1-6} alkylamino,

(15) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino group [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(16) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14}

aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(17) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(18) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(19) sulfo,

(20) C_{6-14} aryl and

(21) C_{6-14} aryloxy, or

(b) a C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl or C_{3-6} cycloalkyl group **[which may be]** **optionally** substituted by 1 to 5 substituents selected from the group consisting of

(1) a C_{6-14} aryl or 5- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of

nitrogen, sulfur and oxygen atoms in addition to carbon atoms, each of which **[may be]** **is** **optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1') halogen atoms,

(2') C_{1-3} alkylenedioxy,

(3') nitro,

(4') cyano,

(5') **[optionally]** halogenated **or** **unhalogenated** C_{1-6} alkyl,

(6') **[optionally]** halogenated **or** **unhalogenated** C_{2-6} alkenyl,

(7') **[optionally]** halogenated **or** **unhalogenated** C_{2-6} alkynyl,

(8') **[optionally]** halogenated **or** **unhalogenated** C_{3-6} cycloalkyl,

(9') **[optionally]** halogenated **or** **unhalogenated** C_{1-6} alkoxy,

(10') **[optionally]** halogenated **or** **unhalogenated** C_{1-6} alkylthio,

(11') hydroxy,

(12') amino,

(13') mono-C_{1-6} alkylamino,

(14') di-C_{1-6} alkylamino,

(15') 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(16') acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(17') acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-

carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(18') acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(19') sulfo,

(20') C_{6-14} aryl and

(21') C_{6-14} aryloxy,

(2) halogen atoms,

(3) C_{1-3} alkylenedioxy,

(4) nitro,

(5) cyano,

(6) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(7) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(8) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(9) **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(10) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(11) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(12) hydroxy,

(13) amino,

(14) mono-C_{1-6} alkylamino,

(15) di-C_{1-6} alkylamino,

(16) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(17) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered

heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(18) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(19) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy, mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy and

(20) sulfo; and

R^6 is a hydrogen atom or a C_{1-6} alkyl; and

ring A is a benzene ring **[which may be]** **optionally** further substituted by 1 to 3 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-3} alkylenedioxy,

(3) nitro,

(4) cyano,

(5) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkyl,

(6) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkenyl,

(7) **[optionally]** halogenated **or unhalogenated** C_{2-6} alkynyl,

(8) **[optionally]** halogenated **or unhalogenated** C_{3-6} cycloalkyl,

(9) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkoxy,

(10) **[optionally]** halogenated **or unhalogenated** C_{1-6} alkylthio,

(11) hydroxy,

(12) amino,

(13) mono-C_{1-6} alkylamino,

(14) di-C_{1-6} alkylamino,

(15) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic heterocyclic group,

(16) acyl selected from the group consisting of formyl, carboxy, carbamoyl, C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{1-6} alkoxy-carbonyl, C_{6-14} aryl-carbonyl, C_{7-16} aralkyl-carbonyl, C_{6-14} aryloxy-carbonyl, C_{7-16} aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C_{1-6} alkyl-carbamoyl, di-C_{1-6} alkyl-carbamoyl, C_{6-14} aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C_{1-6} alkylsulfonyl, C_{6-14} arylsulfonyl, C_{1-6} alkylsulfinyl and C_{6-14} arylsulfinyl,

(17) acylamino selected from the group consisting of formylamino, C_{1-6} alkyl-carboxamido, C_{6-14} aryl-carboxamido, C_{1-6} alkoxy-carboxamido, C_{1-6} alkylsulfonylamino and C_{6-14} arylsulfonylamino,

(18) acyloxy selected from the group consisting of C_{1-6} alkyl-carbonyloxy, C_{6-14} aryl-carbonyloxy, C_{1-6} alkoxy-carbonyloxy,

mono-C_{1-6} alkyl-carbamoyloxy, di-C_{1-6} alkyl-carbamoyloxy, C_{6-14} aryl-carbamoyloxy and nicotinoyloxy,

(19) sulfo,

(20) C_{6-14} aryl and

(21) C_{6-14} aryloxy.

3. (TWICE AMENDED) A compound of Claim 1, wherein R^1 and R^2 each is a C_{1-6} alkyl or R^1 and R^2 form, taken together with the adjacent carbon atom, a 3- to 8-membered carbo or heterocyclic **unsubstituted or substituted** ring **[which may be substituted]**.

5. (AMENDED) A compound of Claim 1, wherein R^4 is (i) an aliphatic hydrocarbon group substituted by an **unsubstituted or substituted** aromatic group **[which may be substituted]**, which hydrocarbon group may further be substituted or (ii) an acyl.

10. (TWICE AMENDED) A compound of Claim 1,

wherein R^1 and R^2 each is a C_{1-6} alkyl or R^1 and R^2 form, taken together with the adjacent carbon atom, a 3- to 8-membered carbo or heterocyclic **unsubstituted or substituted** ring**; said substituted ring [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl, C_{7-16} aralkyl and 5- to 10-membered aromatic heterocyclic group;

R^3 is a phenyl, 1-naphthyl, 2-naphthyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-quinolyl, 3-quinolyl, 1-isoquinolyl, 1-indolyl, 2-indolyl or 2-benzothiazolyl group, each of which **[may be] is optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-6} alkyl,

(3) C_{1-6} alkoxy,

(4) mono-C_{1-6} alkylamino,

(5) di-C_{1-6} alkylamino and

(6) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and 5- to 10-membered aromatic group;

R^4 is

(i) C_{1-6} alkyl substituted by a phenyl, 1-naphthyl, 2-naphthyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, 2-quinolyl, 3-quinolyl, 1-isoquinolyl, 1-indolyl, 2-indolyl or 2-benzothiazolyl group, each of which **[may be] is optionally** substituted by 1 to 3 substituents selected from the group consisting of

(1) halogen atoms,

(2) C_{1-6} alkyl,

(3) C_{1-6} alkoxy,

(4) hydroxy,

(5) amino,

(6) mono-C_{1-6} alkylamino,

(7) di-C_{1-6} alkylamino,

(8) carboxy and

(9) 5- to 7-membered saturated **unsubstituted or substituted** cyclic amino**; said substituted cyclic amino [which may be]** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and

5- to 10-membered aromatic group, which C_{1-6} alkyl may be further substituted by carboxy or C_{1-6} alkoxy-carbonyl, or

(ii) a C_{1-6} alkyl-carbonyl, C_{3-6} cycloalkyl-carbonyl, C_{6-14} aryl-carbonyl or C_{7-16} aralkyl-carbonyl group, each of which **[may be] <u>is optionally</u>** substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, C_{1-6} alkyl, C_{1-6} alkoxy, hydroxy, amino, mono-C_{1-6} alkylamino, di-C_{1-6} alkylamino and carboxy;

X is an oxygen atom;

Y is an oxygen atom; and

ring A is a benzene ring which **[may be] <u>is optionally</u>** further substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, **[optionally]** halogenated **<u>or unhalogenated</u>** C_{1-6} alkyl, **[optionally]** halogenated **<u>or unhalogenated</u>** C_{1-6} alkoxy, amino, mono-C_{1-6} alkylamino and di-C_{1-6} alkylamino.

11. (TWICE AMENDED) A compound of Claim 1,

wherein R^1 and R^2 each is a C_{1-6} alkyl or R^1 and R^2 form, taken together with the adjacent carbon atom, a piperidine **[which may be] <u>optionally</u>** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkyl, C_{6-14} aryl and C_{7-16} aralkyl;

R^3 is a phenyl **[which may be] <u>optionally</u>** substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, C_{1-6} alkyl, C_{1-6} alkoxy, amino, mono-C_{1-6} alkylamino and di-C_{1-6} alkylamino;

R^4 is

(i) C_{1-6} alkyl substituted by a phenyl or pyridyl, each of which **[may be] <u>is optionally</u>** substituted by 1 to 3 substituents selected from the group consisting of

halogen atoms, C_{1-6} alkyl, C_{1-6} alkoxy, hydroxy, amino, mono-C_{1-6} alkylamino, di-C_{1-6} alkylamino and carboxy, or

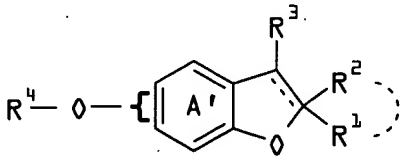
(ii) an acyl of the formula: -(C=O)-$R^{5'}$ wherein $R^{5'}$ is a phenyl or phenyl-C_{1-6} alkyl, each of which **[may be] <u>is optionally</u>** substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, C_{1-6} alkyl, C_{1-6} alkoxy, hydroxy, amino, mono-C_{1-6} alkylamino, di-C_{1-6} alkylamino and carboxy;

X is an oxygen atom;

Y is an oxygen atom; and

ring A is a benzene ring which **[may be] <u>is optionally</u>** further substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, **[optionally]** halogenated **<u>or unhalogenated</u>** C_{1-6} alkyl, **[optionally]** halogenated **<u>or unhalogenated</u>** C_{1-6} alkoxy, amino, mono-C_{1-6} alkylamino and di-C_{1-6} alkylamino.

12. (TWICE AMENDED) A compound of Claim 1 which is a compound of the formula:



wherein R^1 and R^2 each is C_{1-6} alkyl or R^1 and R^2 form, taken together with the adjacent carbon atom, a piperidine substituted by a C_{1-6} alkyl or a C_{7-16} aralkyl;

R^3 is a phenyl **[which may be] <u>optionally</u>** substituted by 1 to 3 substituents selected from the group consisting of (1) C_{1-6} alkyl, (2) di-C_{1-6} alkylamino and (3) 6-membered saturated cyclic amino **[which may be] <u>optionally</u>** substituted by a C_{1-6} alkyl,

R^4 is

(i) a phenyl **[which may be] <u>optionally</u>** substituted by 1 to 3 substituents selected from the group consisting of nitro and C_{1-6} alkyl-carboxamido,

(ii) a C_{1-6} alkyl or C_{2-6} alkenyl group substituted by 1 to 3 of phenyl, quinolyl or pyridyl, each of which **[may be] <u>is optionally</u>** substituted by 1 to 3 substituents selected from the group consisting of C_{1-6} alkoxy, C_{1-6} alkylthio, C_{1-6} alkoxy-carbonyl, C_{1-6} alkylsulfonyl and C_{1-6} alkylsulfinyl, which C_{1-6} alkyl or C_{2-6} alkenyl group **[may be] <u>is optionally</u>** further substituted by a phenyl, carboxy or C_{1-6} alkoxy-carbonyl, or

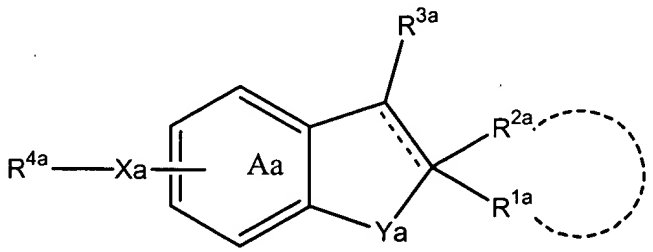
(iii) an acyl of the formula: $-(C=O)-R^{5''}$

wherein $R^{5''}$ is phenyl substituted by a C_{1-6} alkoxy; and

ring A' is a benzene ring which **[may be] <u>is optionally</u>** further substituted by 1 to 3 C_{1-6} alkyl.

13. (TWICE AMENDED) A compound of Claim 1 which is 3-(4-isopropylphenyl)-2,4,6,7-tetramethylbenzofuran-5-yl 4-methoxybenzoate, 3-(4-isopropylphenyl)-5-(4-methoxybenzyloxy)-2,4,6,7- **[tetarmethylbenzofuran,] <u>tetramethylbenzofuran,</u>** 3-(4-isopropylphenyl)-5-(4-methoxybenzyloxy)-1',4,6,7-tetramethylspiro(benzofuran-2(3H), 4'-piperidine), or a salt thereof.

22. (FOUR TIMES AMENDED) A method for suppressing β-amyloid toxicity in a mammal, which comprises administering to said mammal an effective amount of a compound of the formula:



wherein R^{1a} and R^{2a} each represents a hydrogen atom or a hydrocarbon group which **[may be]** **is optionally** substituted, or R^{1a} and R^{2a} form, taken together with the adjacent carbon atom, a 3- to 8-membered carbo or heterocyclic **unsubstituted or substituted** ring **[which may be substituted]**;

R^{3a} represents a hydrogen atom**[, a lower alkyl which may be substituted]** or an **unsubstituted or substituted** aromatic group **[which may be substituted]**;

R^{4a} represents an **unsubstituted or substituted** aromatic group **[which may be substituted]**, an **unsubstituted or substituted** aliphatic hydrocarbon group **[which may be substituted]** or an acyl;

Xa represents an oxygen atom **[or a sulfur atom which may be oxidized]**;

Ya represents an oxygen atom**[, a sulfur atom which may be oxidized or an imino which may be substituted]**;

---- represents a single bond or a double bond;

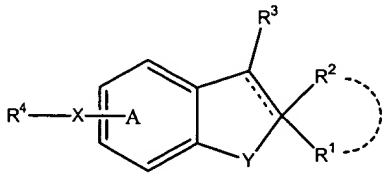
ring Aa represents a benzene ring which **[may be]** **is optionally** further substituted apart from (i) the group of the formula: -Xa-R^{4a} wherein each symbol is as defined above, and (ii) an **unsubstituted or substituted** amino **[which may be substituted]**,

provided that when **[Xa and Ya are oxygen atoms and]** ---- is a single bond, R^{4a} is not an acyl,

or a pharmaceutically acceptable salt thereof

with a pharmaceutically acceptable excipient, carrier or diluent.

25. (TWICE AMENDED) A method for suppressing β-amyloid toxicity in a mammal, which comprises administering to said mammal an effective amount of a compound of the formula:



wherein R^1 and R^2 each represent an acyclic hydrocarbon group, a cycloalkyl group, or R^1 and R^2 form, taken together with the adjacent carbon atom, a 3- to 8-membered carbo or heterocyclic **unsubstituted or substituted** ring **[which may be substituted]**;

R^3 represents an **unsubstituted or substituted** aromatic group **[which may be substituted]**;

R^4 represents (1) an **unsubstituted or substituted** aromatic group **[which may be substituted]**, (2) an aliphatic hydrocarbon group substituted by an **unsubstituted or substituted** aromatic group **[which may be substituted]**, which hydrocarbon group **[may be]** **is optionally** further substituted or (3) an acyl;

X and Y each **[represents]** **represent** an oxygen atom **[or a sulfur atom which may be oxidized]**;

------- represents a single bond or a double bond;

and Ring A represents a benzene which **[may be]** **is optionally** further substituted apart from the group of the formula: $-X-R^4$ wherein each symbol is as defined above,

provided that when **[X and Y are oxygen atoms and]** ------- is a single bond, R^4 is not an acyl,

or a salt thereof

with a pharmaceutically acceptable excipient, carrier or diluent.

26. (TWICE AMENDED) A method of claim 25, which is a method for treating Alzheimer's disease**[, Parkinson's disease, amyotrophic lateral sclerosis, Huntington's chorea or diabetic neuropathy]**.

28. (TWICE AMEMDED) A method of claim 22, which is a method for treating Alzheimer's disease**[, Parkinson's disease, amyotrophic lateral sclerosis, Huntington's chorea or diabetic neuropathy]**.

REMARKS

I. Amendments

Applicants acknowledge the withdrawal of the previous final rejection (paper no. 13).

Applicants also note that claim 24 was indicated to be allowable in paper nos. 8, 10 and 15, although indication of allowability for claim 24 was not provided on the summary page for paper no. 14.

Claims 1-3, 5, 10-13, 22, 25, 26 and 28 have been amended and claims 6, 7 and 23 have been cancelled.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "Version with Markings to Show Changes Made".

No amendment of inventorship is necessitated by these amendments.

II. Discussion of Previously Submitted Information Disclosure Statement

Applicants filed an Information Disclosure Statement of December 2, 1999. In paper no. 8, the 1449 was attached, but several of the references were lined through. The Examiner indicated that not all references were initialed because not all references had not been received. On February 2, 2001, Applicants submitted copies of these references to the Examiner. However, these references were not acknowledged by the Examiner in a subsequent Office Action summary. Applicants request that the Examiner inform them if the copies of the references mailed February 2, 2001 were not received. If they were received, Applicants respectfully request that the Examiner provide them with an initialed form 1449.

III. Discussion of the Rejection of Claims 1-3, 5-15 and 22 under 35 U.S.C. Sec. 112, First Paragraph

Claims 1-3, 5-15 and 22 have been rejected under 35 U.S.C. Sec. 112, first paragraph. The Examiner stated that the specification does not reasonably provide enablement for Y being other than O, R^4 being other than moieties indicated on pages 103-105 and R^3 being other than

phenyl substituted with a dimethyl group. Although claim 25 is not presently rejected under this rejection, Applicants have addressed it also, as it is an independent claim.

By this amendment, Applicants have amended claims 1, 22, and 25 to limit X and Y to oxygen. Moreover, claims 6 and 7 have been cancelled in connection with this limitation. In conjunction with the limitations of X and Y, Applicants have amended the title of their invention, commensurate with the scope of the claims. Applicants submit that these amendments render the claims enabled as to X and Y.

As to R^3, Applicants have synthesized compounds representing a broader range of substitutents than than just the "phenyl substituted with a dimethyl group" which the Examiner has indicated is enabled. On pages 103-105, substituent c represents R^3 of the claims 1 and 25 and R^{3a} of claim 22. In Examples 3 and 31, c = H; in Example 28, c is unsubstituted phenyl and in Examples 2 and 6-8, substituents of phenyl other than a dimethyl group are exemplified. Therefore, Applicants submit that in claims 1 and 25, R^3 as an unsubstituted or substituted aromatic group is enabled. In claim 22, R^{3a} has been limited to hydrogen or an unsubstituted or substituted aromatic group by this amendment. Applicants therefore submit that claims 1, 22 and 25 are enabled as to R^3 or R^{3a}.

As to R^4 and R^{4a}, the Examiner has indicated that only moieties disclosed on pages 103-105 are enabled. On pages 103-105, R^4 and R^{4a} are represented by substituents d, e, f and g in the generic structure. In the claims as amended, X represents oxygen. So in Examples 20 and 21, substituent e, examples of R^4 as an aromatic group are provided; in Examples 15, 23 and 24, substituent e, examples of R^4 as an aliphatic hydrocarbon group substituted by an unsubstituted or substituted aromatic group are provided; and in Examples 26 and 28, substituent e, examples of R^4 as acyl are provided. Applicants apologize for any confusion which the labeling of substituents as R^4 or R^{4a} as d, e, f or g in the structures on pages 103-105 has caused the Examiner, but do assert that the claimed R^4 or R^{4a} substituents are in fact fully enabled as explained above.

As claims 2, 3 and 5-15 are dependent upon claim 1, Applicants submit that the more specific dependent claims are also adequately enabled. As each of the rejected claims are indeed enabled by the specification, Applicants respectfully request withdrawal of the Sec. 112, first paragraph rejection.

IV. Discussion of the Rejection of Claims 23 and 26-28 under 35 U.S.C. 112, First Paragraph

Claims 23 and 26-28 have been rejected under 35 U.S.C. Sec. 112, first paragraph. The The Examiner stated that the specification does not reasonably provide enablement for Y being other than O, R^4 being other than moieties indicated on pages 103-105 and R^3 being other than phenyl substituted with a dimethyl group.

As explained in Section III above, Applicants believe that the definitions for Y, R^{3a} and R^{4a} are enabled in the claims as amended. Applicants hereby incorporate their previous arguments. Applicants note that claim 27 was cancelled in a previous amendment, and further note that claim 26 depends upon claim 25, which does not contain R^{3a} or R^{4a}.

By this amendment, Applicants have cancelled claim 23, a use claim. Also by this amendment, Applicants have limited claims 26 and 28 to Alzheimer's disease. In the experimental section of their specification, Applicants proved that exemplary compounds suppressed beta-amyloid toxicity. It is well-recognized in the art that compounds which exhibit beta-amyloid toxicity suppressing effects are effective for the treatment of Alzheimer's disease. One illustrative teaching is provided as Appendix A ("Beta-Amyloid as a Target for Alzheimer's Disease Therapy" in Annual Reports in Medicinal Chemistry-34, pages 21-30), for the Examiner's reference. Additionally, the specification (at page 2, line 3 through page 4, line 6) emphasizes the connection of beta-amyloid to treatment of Alzheimer's disease. Therefore, Applicants submit that the compounds claimed are fully enabled, and moreover that the use of the compounds against Alzheimer's disease as claimed in claims 26 and 28 is also fully enabled.

Therefore, Applicants respectfully request withdrawal of the Sec. 112, first paragraph rejection.

V. Discussion of Rejection of Claims 1-3, 5-15, 22-26 and 28 under 35 U.S.C. Sec. 112, Second Paragraph

Claims 1-3, 5-15, 22-26 and 28 have been rejected under 35 U.S.C. Sec. 112, second paragraph as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Office Action stated that the phrase "may be" was indefinite.

By this amendment, the claims have been amended to remove "may be". Therefore Applicants respectfully request withdrawal of the 35 U.S.C. Sec. 112, second paragraph rejection.

VI. Conclusion

Reconsideration of the claims as amended and allowance is requested.

Should the Examiner believe that a conference with Applicants' attorney would advance prosecution of this application, she is respectfully requested to call Applicants' attorney at (847) 383-3391.

Respectfully submitted,

Dated: February 7, 2002

Elaine M Ramesh

(847) 383-3391
(847) 383-3372

Elaine M. Ramesh, Ph.D., Reg. No. 43,032
Mark Chao, Ph.D., Reg. No. 37,293

Attorney for Applicants
Customer No. 23115

Takeda Pharmaceuticals North America, Inc.
Intellectual Property Department
Suite 500, 475 Half Day Road
Lincolnshire, IL 60069 USA

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